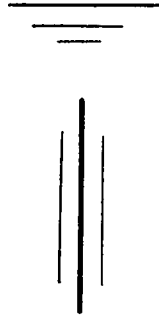
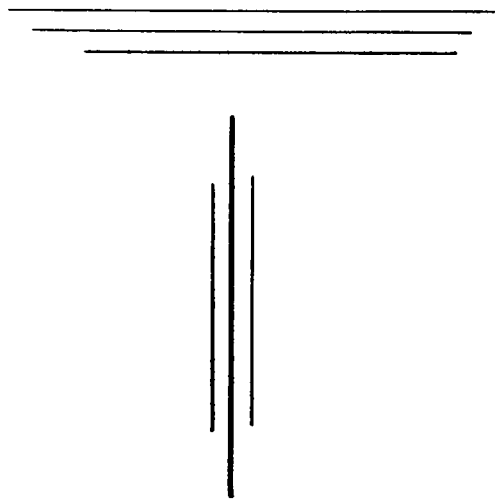


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**HUDSON BAY MINING AND SMELTING CO., LIMITED**  
**FLIN FLON** **MANITOBA**



**THE FLIN FLON BASE METAL MINE  
AND  
METALLURGICAL PLANT**





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Flin Flon, Manitoba, Canada

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Mr. Tom Creighton, one of Canada's outstanding pioneer prospectors, discovered the Flin Flon mine in January, 1915.

Flin Flon derived its name from the leading character, one Josiah Flintabbatey Flonatin, characterized in a novel, "The Sunless City."

The property was held and under option to several mining concerns during the period 1915 to 1925 when it was finally optioned by the Harry Payne Whitney interests of New York.

Under this option a series of metallurgical tests were carried out and the option taken up in December 1927, following which the Hudson Bay Mining and Smelting Co., Limited was formed to take

over and operate the property.

The actual development of the mine and the construction of the concentrator, zinc recovery plant and copper smelter, as well as the hydro-electric plant at Island Falls, Saskatchewan, about fifty-six miles north-west of Flin Flon on the Churchill River, was started in 1928 and actual operation commenced in the latter part of 1930.

The C.N. Railroad was built from The Pas, Manitoba to Flin Flon, a distance of about eighty-seven miles, during 1928.

The mine and plantsite lie astride the Manitoba-Saskatchewan border at latitude  $54^{\circ}45'$  and longitude  $101^{\circ}53'$ . The rock formations in the vicinity of the mine are Precambrian in age. The area is dotted with both large and small lakes and the average elevation of the surrounding country is a thousand feet above sea-level.

A large portion of the top of the ore body was

overlaid by water and sediments and necessitated the damming off and pumping out of a lake and removal of 1,000,000 yards of clay and mud before starting mining operations.

The top 300 feet of the ore body was mined by open pit methods, and while this was in progress the underground portion was developed and furnished a part of the daily production. Since 1937 all the ore has been derived from the mine and is hoisted through two main shafts.

Operations originally started at 3,000 tons per day and gradually increased to 6,000 tons per day during the war period. The daily tonnage treated now averages 5,000 tons.

Open stopes, when completely mined out, are filled with smelter slag, waste rock and sand.

The minerals in the Flin Flon ore; namely - copper, zinc, gold, silver, cadmium, selenium and tellurium are very closely associated with one

another as minute particles, and before separation and concentration are attempted, must be ground or crushed to a flour-like consistency. Water is added during this operation and acts as a medium of conveyance.

With the addition of certain reagents to the agitated ore stream or pulp, along with the admittance of low pressure air, it is possible to float off the copper, along with a large part of the gold and silver, while the tails, or remaining ore pulp, are carried along to another set of flotation cells where, with the addition of other reagents, the zinc is floated off along with lesser amounts of gold, silver and cadmium. The copper and zinc concentrates are pumped to the filter plant, where they are dewatered before being treated in the copper smelter and zinc plant.

The zinc concentrates consist primarily of zinc sulphides and iron sulphides. The sulphur is burned

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off when the concentrates are roasted and the resulting calcine is leached with a weak sulphuric acid solution. After the solution is separated from the solids and purified, it is pumped to the electrolytic department where the zinc is plated on aluminum sheets. After stripping the zinc from the aluminum, the deposited zinc sheets are collected and melted and cast into fifty-six pound bars and are ready for market. The zinc is above 99.99 per cent pure and used principally for zinc die-casting, galvanizing and brass making.

The copper concentrates, when received from the concentrator, are dewatered in the filters and partly roasted before being smelted in the reverberatory furnace. Waste slag is skimmed off the top of the molten mass in the reverberatory furnace and the heavier copper matte is tapped off near the bottom of the furnace. The tapped matte is further purified in the converters and is reduced to pure

copper and poured into moulds. Each block of copper weighs about four hundred and sixty pounds and is shipped to the refinery in Eastern Canada, where the gold, silver, selenium and tellurium are recovered.

In 1951 the Company put into operation the new slag fuming plant for recovery of zinc from the reverberatory waste slag and zinc residues accumulated over the years. The recovered zinc oxides are treated in the zinc plant extension and shipped as slab zinc.

Due to the remote location of Flin Flon in respect to any major city, it is essential for the Mining Company to construct and provide an adequate machine and electrical repair shop, paint shop and warehouse facilities.

The plant and domestic water supply is pumped to Flin Flon through a twenty-inch woodstave pipeline from lakes about four miles away.

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The Company operates a fully staffed "Safety First" Department to safeguard the lives of its employees and inspections of plants are made at regular intervals by selected committees of workmen and officials.

The Company operates a school for classroom instruction in conjunction with its apprentice courses.

Welfare plans for employees include vacations with pay, group life insurance, non-compensable Accident and Sick Benefit Plan, an old age pension system, the Employees' Health Association, embracing all dependents.

The Flin Flon Community Club sponsors sports of all kinds both winter and summer, and the Company has built and operates a summer resort for all the people of the Town at a nearby lake.

The Hudson Bay Mining and Smelting Co., Limited spent \$20,500,000.00 on its original mine, metal-

lurgical plant and hydro-electric plants and another \$10,500,000.00 by 1943 for plant additions.

The present payroll is around eleven million dollars per year and the annual cost of materials for maintenance, repairs and operation totalled \$8,000,000.00, while over \$12,000,000.00 was paid in taxes and royalties. This great wealth in the millions, aside from supporting a town of 12,500 people, is distributed to the general advantage of Canada as a whole and to the provinces of Manitoba and Saskatchewan in particular.

Flin Flon, Man.

August, 1953



